IMPROVED METHODS AND APPARATUS FOR ELECTROLYSIS OF WATER

ABSTRACT OP THE DISCLOSURE

A method and apparatus are provided for electrolyzing water for enhanced production of oxygen, hydrogen and heat by the steps of (i) providing an electrochemical cell comprising an isotopic hydrogen storage cathode, an electrically conductive anode and an ionically conducting electrolyte comprising water, and (ii) impressing a repeating sequence of voltages across the cathode and anode comprised of at least two cell voltage regimes, a first cell voltage regime consisting of a voltage sufficient to enhance cathodic absorption of hydrogen, and a second cell voltage regime consisting of at least one voltage pulse which is at least two times the voltage of the first cell voltage regime for a total duration no greater than 0.10 seconds.